



California Regional Water Quality Control Board Central Valley Region

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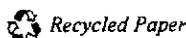
REQUIREMENT FOR TECHNICAL REPORT PURSUANT TO CALIFORNIA WATER CODE SECTION 13267

The Regional Water Quality Control Board (Regional Water Board) is required to protect and enhance the beneficial uses of surface and ground waters. The City of Stockton and County of San Joaquin (hereafter Dischargers) have been identified as major dischargers of wastes to surface waters under various permits.

Section 303(d) of the federal Clean Water Act (CWA) and 40 CFR 130.7 requires States to list water quality-impaired water bodies and pollutants of concern, and develop Total Maximum Daily Loads (TMDLs) to address the impairments. A TMDL is a quantitative assessment of the total pollutant load that can be discharged from all sources while still meeting water quality objectives. The following is a list of water bodies on the Section 303(d) impaired water body list that may be affected by discharges from the Stockton area. These impairments are based on identified exceedances of water quality objectives.

Waterbody	Reach	Estimated Size affected	Pollutant/Stressor(s)
Calaveras River	Lower	5.8 miles	Diazinon Organic Enrichment/Low Dissolved Oxygen (DO) Pathogens
Delta Waterways	Eastern Portion	2,972 acres	Chlorpyrifos DDT Diazinon Exotic Species Group A Pesticides Mercury

California Environmental Protection Agency



Waterbody	Reach	Estimated Size affected	Pollutant/Stressor(s)
			Unknown Toxicity
Delta Waterways	Stockton Ship Channel	1,603 acres	Chlorpyrifos DDT Diazinon Dioxin Exotic Species Furan Compounds Group A Pesticides Organic Enrichment/Low DO Pathogens PCBs (Polychlorinated Biphenyls) Unknown toxicity
Five-Mile Slough	Alexandria Place to Fourteen Mile Slough	1.6 miles	Chlorpyrifos Diazinon Organic Enrichment/Low DO Pathogens
Mormon Slough	Commerce Street to Stockton Deep Water Channel	0.93 miles	Organic Enrichment/Low DO Pathogens
Mormon Slough	Stockton Diverting Canal to Commerce Street	5.2 miles	Pathogens
Mosher Slough	Downstream of I-5	1.3 miles	Chlorpyrifos Diazinon Organic Enrichment/Low DO Pathogens
Mosher Slough	Upstream of I-5	3.5 miles	Pathogens
Smith Canal	---	2.4 miles	Organic Enrichment/Low DO Organophosphorous Pesticides Pathogens
Walker Slough	---	2.3 miles	Pathogens

TMDLs have been adopted or approved for some of the impairments listed above and others are under development.

In addition to the impairments identified on the Section 303(d) list, the Regional Water Board Toxic Hot Spots Clean-up Plan (California Water Code section 13394) identified the following hot spots that are applicable to discharges from the Stockton area: 1) Mercury in the Delta; 2) Dissolved oxygen in the San Joaquin River in the City of Stockton; and 3) Diazinon and Chlorpyrifos in Mosher Slough, Five-Mile Slough, Calaveras River, and Mormon Slough.

The purpose of this Order is to clearly define the monitoring and assessment actions that must be implemented to meet existing Basin Plan requirements (i.e., adopted TMDLs) and to

address impairments identified on the 303(d) list and in the Bay Protection and Toxic Hot Spot Cleanup Plan. The actions described below address requirements and provisions of the Basin Plan and Bay Protection and Toxic Cleanup Program and will provide information that is needed for the Regional Water Board to evaluate the Dischargers' discharge contribution to the impairments.

The Regional Water Board is requiring the following monitoring needed for TMDL development and implementation and to address the Toxic Hot Spots:

1. **Pathogens:** Pathogens cause illnesses, which are considered detrimental physiological responses in humans. *Escherichia coli* (*E. coli*) is an indicator for disease causing pathogens.

The Dischargers shall conduct pathogen monitoring consistent with the 18 August 2004 Pathogen Plan as approved by the Regional Water Board. Consistent with that Plan, the Dischargers will monitor six water bodies to identify and mitigate controllable bacteria sources. The water bodies include:

- Calaveras River
- Mormon Slough
- Smith Canal
- Five-Mile Slough
- Mosher Slough
- Walker Slough

Characterization Monitoring

The goal of the characterization monitoring is to determine long term trends in bacteria loading and identify bacteria "hot spots" that contribute to beneficial use impairments. Monitoring for total coliform, fecal coliform and *E. coli* shall be conducted at strategic locations along the impaired waterbody. The Dischargers shall conduct a minimum of five wet weather events, including the first flush, if possible. In addition, the Dischargers shall collect dry weather sample events twice per month over the course of the characterization phase.

Source Identification Studies

The purpose of the source identification study is to identify the likely organism (e.g. human or non-human) for discharges with high indicator bacteria concentrations. The source identification studies shall consist of two primary monitoring efforts: microbial source tracking and location tracking studies. The microbial source tracking shall be based on the polymerase chain reaction (PCR) method that target enteric bacteria *Bacteroidales* and human-specific viruses. Microbial source tracking shall focus on outfalls with the highest indication of bacteria concentrations as identified in the characterization monitoring. Based on the results of the microbial source tracking the outfalls with identified high human *Bacteroidales* and/or virus detections shall be the focus of the location tracking studies. The location tracking monitoring will consist of a combination of Microbial Source Tracking (MST) and indicator bacteria samples to guide efforts to identify the source of bacteria moving into the drainage system.

Pathogen Plan Monitoring Schedule

The City is currently conducting Pathogen studies under an existing and Regional Water Board approved Pathogen Plan (1 April 2004 w amendments 18 August 2004). This Plan proposes implementation according to a prescribed schedule in a three-phase approach with two out of the six waterbodies monitored in each Phase. Each Phase will have a start and end date with a schedule representing the monitoring, source identification, implementation of best management practices (BMPs), and effectiveness assessment efforts described above. Any changes to the prescribed schedule shall be included in a revised Pathogen Plan and approved by the Regional Water Board's Executive Officer.

2. **Pesticides:** Organophosphorous pesticides, principally diazinon and chlorpyrifos, are commonly used insecticides found in the urban environment from residential, industrial and commercial use. They can cause toxicity both in urban storm water discharges and in receiving water. The continued monitoring of diazinon and chlorpyrifos is needed to determine the significance of the Dischargers' contribution to diazinon and chlorpyrifos levels in 303(d) listed waters and the toxic hot spots. Monitoring is also needed to determine the effectiveness of the phase-out of urban uses of diazinon and chlorpyrifos; to assess whether the hot spots are maintained; and to assess whether water quality objectives are met.

The Dischargers shall conduct pesticide monitoring consistent with the 1 April 2004 (revisions 22 September 2004) Pesticide Plan as approved by the Regional Water Board's Executive Officer. Consistent with that Plan, four water bodies shall be monitored to identify and mitigate controllable pesticide sources, if necessary. The water bodies include:

- Calaveras River
- Moshier Slough
- Five-Mile Slough
- Smith Canal

Sampling must take place, at a minimum, in one storm event during the dormant spray application season, one storm event following the dormant spray application season, and once during the dry season annually. The Dischargers shall conduct this additional pesticide monitoring until the Dischargers can demonstrate to the Regional Water Board Executive Officer's satisfaction that water quality objectives are being met or the cause of exceedances of water quality objectives is not related to the Dischargers' discharge.

- a. If diazinon or chlorpyrifos water quality objectives in receiving water are not met, the Dischargers shall identify potential continuing sources of diazinon and chlorpyrifos within residential and commercial areas. The Dischargers shall incorporate any findings regarding these sources into the Pesticide Plan program component of the SWMP.
- b. Monitor pyrethroids in urban runoff/discharges. Sampling must take place, at a minimum, in one storm event during the dormant spray application season, one

storm event following the dormant spray application season, and once during the dry season annually. If applicable, identify potential sources of pyrethroids within residential and commercial areas. The Dischargers shall incorporate any findings regarding sources into the approved Pesticide Plan.

The monitoring required under this section may be conducted in collaboration with the Regional Water Board and/or the Department of Pesticide Regulation.

3. **Methylmercury:** The Delta is impaired because of elevated methylmercury levels in fish. The Delta is on the Clean Water Act Section 303(d) List as mercury impaired. In addition, the State Water Resources Control Board (State Water Board) designated the Delta as a toxic hot spot for mercury under the Bay Protection and Toxic Hot Spot Cleanup Program. Available information indicates that the Stockton area contributes total mercury and methylmercury to the Delta. This Order requires monitoring to determine the extent to which Stockton area discharges contribute methylmercury and total mercury to the Delta. There will be additional monitoring requirements in the future to identify the sources of the methylmercury and total mercury and to evaluate best management practices to reduce the mercury in the Stockton area discharges.

The baseline monitoring should determine the methylmercury and total mercury concentrations and loads discharged to the Delta by the Stockton area. Baseline monitoring should evaluate both direct discharges to Delta waterways and discharges to the Delta via upstream tributaries. Either direct measurements or estimates of discharge volume (flow) will be needed to calculate the loads.

The Dischargers shall perform the following for baseline monitoring:

- a. The Dischargers shall collect unfiltered water samples from a minimum of eight locations each year, which include a combination of discharge outfalls, major upstream tributaries of the Stockton urbanized area and / or downstream locations. The discharge locations shall be representative of conditions throughout the watersheds in the Stockton area.
- b. The Dischargers shall monitor a minimum of three storm events and two dry weather events each year for three years, including a range of storm intensities. The Dischargers shall collect a minimum of 120 samples over the three-year characterization period.
- c. The Dischargers shall measure or estimate (a) instantaneous discharges occurring at the sampled discharge locations at the time samples are collected and (b) annual discharge volumes from the Stockton area within each watershed (e.g., the amount of discharge contributed by the Stockton area to the Calaveras River).
- d. The unfiltered water samples shall be analyzed for methylmercury, total mercury, and suspended sediment concentration. The methylmercury samples shall be analyzed with a method detection limit (MDL) of 0.02 ng/l and minimum reporting level (ML) of 0.05 ng/l. Unfiltered total mercury samples shall be analyzed with a

MDL of 0.2 ng/l and ML of 0.5 ng/l. Minimum reporting levels are equivalent to the lowest calibration standards for methylmercury and total mercury, 0.05 and 0.5 ng/l, respectively. For measurements between the ML and MDL, one half the ML shall be used for load calculations. For measurements less than the MDL, one half the MDL shall be used for load calculations. Alternate statistical methods of addressing measurements less than the ML or MDL may be utilized with Executive Officer approval.

- e. The Dischargers shall submit a **baseline characterization workplan** for Executive Officer approval by **1 April 2008** that identifies specific monitoring locations, the method to be used to measure or estimate instantaneous discharges at monitoring locations and annual discharge volumes for the Stockton area, and the monitoring time schedule (e.g., when the monitoring will begin).
- f. The Dischargers shall submit the **final baseline monitoring report** to the Board by **1 December 2011**. The final report must include the methylmercury and total mercury concentrations and loads discharged to the Delta by the Stockton area.

4. **Low Dissolved Oxygen (DO):** To address the dissolved oxygen impairment and toxic hot spot identified in the Stockton Area waterways, the Dischargers are required to monitor and assess the impacts from discharges on receiving water. Low dissolved oxygen (DO) causes fish kills. DO levels must be maintained to protect the aquatic life in the waterways.

The Dischargers shall develop and implement a Low Dissolved Oxygen Monitoring and Assessment workplan that identifies specific monitoring locations, the monitoring time schedule (e.g., when the monitoring will begin) and the sequence of monitoring for each water body. The Dischargers shall submit the workplan for Executive Officer approval by **1 April 2008**. The workplan shall include a minimum of the following :

- a. Monitoring of the following water bodies for a two-year period:

- Lower Calaveras River
- Mormon Slough
- Stockton Deep Water Ship Channel near McLeod Lake*
- Five-Mile Slough
- Mosher Slough
- Smith Canal**

* Be conducted continuously for the Stockton Deep Water Ship Channel near McLeod Lake

** For a minimum of one-year and sampling at a single discharge location (into Yosemite Lake) and a single receiving water location downstream of the discharge/outfall).

- b. Include two urban runoff/discharge locations on each waterbody (one on Smith Canal); a downstream location for a large catchment area as close as possible to the confluence with the Stockton Deep Water Ship Channel, and an upstream

- location for a large catchment area as close as possible to the boundary of the Stockton Area (e.g., city/county) limit;
- c. Include two receiving water monitoring locations on each waterbody (one on Smith Canal); one just downstream of the downstream urban runoff/discharge location (described in item b. above), and one just upstream of the urban runoff/discharge location (described in item b. above). The upstream receiving water location shall be representative of what is entering the waterbody from upstream of the urban area boundary, or from upstream of the terminus of the waterbody (in the event the terminus is in the urban area boundary);
 - d. Use data recorders (+/- 15 minute intervals) at each receiving water location for the following continuous parameters, at a minimum: date time, temperature, depth, DO, pH, turbidity, and EC;
 - e. Analyze once per month grab samples from both receiving water and urban discharge locations for the following constituents, at a minimum: BOD, COD, TSS, Total Ammonia-Nitrogen, Nitrate, Nitrate (as nitrogen), Nitrite, Nitrite (as nitrogen), Phosphate (ortho), Total Phosphorus. Flow quantity and velocity shall be monitored at the urban discharge locations described in this order;
 - f. Analyze grab samples during a minimum of two storm events per year in coordination with the wet weather events required by this permit and include the same analysis on grab samples as required for Item e. above; and
 - g. At time of grab sampling described in e. and f. above, and at all locations, monitor for the following field parameters (at a minimum): date, time, weather, water temperature, DO, pH, EC, salinity, turbidity, and TDS.
 - h. The Dischargers shall submit the **final** Dissolved Oxygen Monitoring and Assessment report to the Regional Water Board by **1 December 2012**.

Pursuant to Section 13267 of the California Water Code, the Dischargers are required to submit monitoring data necessary to implement TMDLs as described in Attachments I, II and III.

Attachment I – Constituents to be monitored. This list identifies the constituents to be monitored and their respective analytical limits. All analyses must be performed by a California certified environmental analytical laboratory.

Attachment II - Reporting Requirements

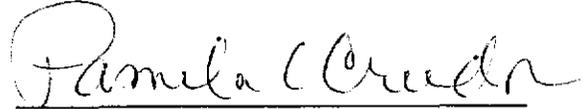
Attachment III – Monitoring locations (may be revised with Executive Officer approval).

Attachment IV – Example of Data Format

All samples shall be collected, data summarized and submitted annually to the Regional Water Board by **1 September of each year**. The Dischargers are required to submit the report and summarized data in printed and electronic format.

Any person who fails or refuses to submit technical or monitoring data as required by Section 13267, California Water Code, or falsifies any information provided is guilty of a misdemeanor and is subject to an administrative civil liability of up to \$1,000 per day of violation, in accordance with Section 13268, California Water Code.¹

If you have any questions, please contact your Regional Water Board staff representative.


PAMELA C. CREEDON
Executive Officer

Attachments (I, II, III and IV)

¹ Available on the internet at http://www.swrcb.ca.gov/rwqcb5/wq_goals.

Attachment I- Constituents to be monitored

		Controlling Water Quality Criterion for Surface Waters				
CTR #	Constituent	CAS Number	Basis	Criterion Concentration/Target (ug/L or noted) (1)	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
INORGANICS						
8	Mercury	7439976	TMDL Development		0.0005 ⁽²⁾	EPA 1669/1631 E
	Methylmercury		TMDL Development		0.00005	EPA 1669/1630 M
PESTICIDES⁽³⁾						
	Diazinon	333415	Basin Plan Objective	0.100	0.050	EPA 8141A/ GCMS
	Chlorpyrifos	2921882	Basin Plan Objective	0.014	0.01	EPA 8141A/ GCMS
	Pyrethroids ⁽¹¹⁾				2.5 ng/L	
BACTERIA⁽⁴⁾						
	Fecal coliform		Basin Plan Objective	200/100 mL Geometric Mean ⁽⁵⁾ , nor 400/100 mL for 10% of samples ⁽⁶⁾	20-1,600,000 MPN/100mL	MTFSM
	Total coliform		Pathogen Plan/CDHS ⁽⁷⁾	10,000 MPN per 100mL single sample and 1,000 MPN per 100 ml 30 day- log mean	20-1,600,000 MPN/100mL	MTF SM9221B/MF SM9222B
	E. coli		Native Basin Plan objective/US EPA numeric criteria	126/100 mL Geometric Mean ⁽⁸⁾ , and 235/100 mL single sample maximum	10-24,196 MPN/100mL	Coilert
	Enteric bacteria Bacteroidales and human-specific viruses		Purpose: Microbial source tracking (MST)	n/a	n/a	current PCR method(9)
OTHER CONSTITUENTS						
	Flow				1 CFS	
	Hardness (as CaCO ₃)			5000	2000	EPA 130.2
	Nitrate (as N)	14797558	Primary MCL	10,000	100	EPA 300.0
	Nitrite (as N)	14797650	Primary MCL	1000	100	EPA 300.0
	pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
	Specific conductance (EC)		Agricultural Use	700 umhos/cm	1 umhos/cm	EPA 120.1
	Temperature		Basin Plan Objective	°F	0.1	
	Total Dissolved Solids (TDS)		Agricultural Use	450,000	2,000	EPA 160.1
	Biochemical Oxygen Demand (BOD)				2000	SM 5210 B
	Total Organic Carbon (TOC)				1000	SM 5310 B
	Total Kjeldahl Nitrogen				100	SM 4500-N _{org} B/C
	Alkalinity				2000	SM2320 B
	Total Ammonia-Nitrogen				100	SM 4500-NH ₃ C
	Dissolved Oxygen		Basin Plan Objective	> 5 mg/L	0.1 mg/l	SM 10200 H

FOOTNOTES:

- (1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses.
- (2) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include: Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, US EPA; and Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence, US EPA
- (3) The following briefly summarizes the pesticide related monitoring required in City of Stockton's 2004 Pesticide Plan. The approved Pesticide Plan and related documents provides information on all monitoring requirements.
- (4) The following briefly summarizes the bacteria related monitoring required in City of Stockton's 2004 Pathogen Plan. The approved Pathogen Plan and related documents provides information on all monitoring requirements.
- (5) Geometric mean concentration of not less than five samples for any 30-day period
- (6) During any 30-day period
- (7) The California Department of Health Services (CDHS) Title 17 CCR section 7958, as specified on pg 5 of the Pathogen Plan.
- (8) Geometric mean concentration of not less than five samples equally spaced over a 30-day period.
- (9) Current PCR method used by City of Stockton is discussed in the City of Stockton Stormwater Management Plan 2005-2006 Annual Report pg 8-35.
- (10) SM = Standard Methods for Examination of Water and Wastewater, by American Public Health Association (or by other means calibrated to these methods).
- (11) Pyrethroids shall include: Bifenthrin, Cyfluthrin-1, Cyfluthrin-2, Cyfluthrin-3, Cyfluthrin-4, Cypermethrin-1, Cypermethrin-2, Cypermethrin-3, Cypermethrin-4, Deltamethrin, Esfenvalerate/Fenvalerate-1, Esfenvalerate/Fenvalerate-2, Lambda-cyhalothrin-1, Lambda-cyhalothrin-2, Permethrin-1, Permethrin-2

Attachment II – Reporting Requirements

1. **Laboratory Requirements**. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code Section 13176 and must include quality assurance/quality control data with their reports.
2. **Criterion Quantitation Limit (CQL)**. The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.swrcb.ca.gov/iswp/final.pdf>) or the detection limits for purposes of reporting (DLRs) published by the Department of Health Services (<http://www.dhs.ca.gov/ps/ddwem/chemicals/DLR/dlrindex.htm>) which is below the controlling water quality criterion concentration.
3. **Method Detection Limit (MDL)**. The method detection limit for the laboratory shall be determined by the procedure found in 40 Code of Federal Regulations (CFR) Part 136, Appendix B (revised as of May 14, 1999).
4. **Reporting Limit (RL)**. The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.
5. **Reporting Protocols**. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:
 - a. Sample results greater than or equal to the reported RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
 - b. Sample results less than the report RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
 - c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.
6. **Data Format.** The monitoring report shall contain the following information for each pollutant:
- a. The name of the constituent.
 - b. Sampling location.
 - c. The date the sample was collected.
 - d. The time the sample was collected.
 - e. The date the sample was analyzed. For organic analyses, the extraction date will also be indicated to assure that hold times are not exceeded for prepared samples.
 - f. The analytical method utilized.
 - g. The measured or estimated concentration.
 - h. The required Criterion Quantitation Limit (CQL).
 - i. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).
 - j. The laboratory's lowest reporting limit (RL).
- Any additional comments.

Attachment III - Sampling locations

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Waterbody	Reach	Pathogens (as specified in City of Stockton's 2004 Pathogen Plan)	Diazinon and Chlorpyrifos	Mercury/ Methylmercury	Dissolved Oxygen (and associated parameters)
Calaveras River		Phase III: Brookside Estates (CR4-D, CR4-R), Pershing Ave (CR3-D, CR3-R), El Dorado St (CR2-D, CR2-R), West Lane (CR1-D, CR1-R)	Sutter Street at Calaveras River (CR 45) and West Lake at Calaveras River (CR 46)	to be determined	Two urban runoff/discharge locations (TBD): upstream near city limit; downstream near SJR confluence. Also, two receiving water locations (TDB): downstream of downstream runoff/discharge; and upstream of upstream runoff/discharge locations.
Five-Mile Slough	Alexandria Place to Fourteen Mile Slough	Phase II: Lighthouse Dr (FM3-D, FM3-R), Plymouth Rd (FM2-D, FM2-R), Alexandria Pl (FM1-D, FM1-R)	Existing receiving water site per pesticide Plan	to be determined	Two urban runoff/discharge locations (TBD): upstream near city limit; downstream near SJR confluence. Also, two receiving water locations (TDB): downstream of downstream runoff/discharge; and upstream of upstream runoff/discharge locations.
Mormon Slough	Stockton Diverting Canal to Commerce Street	Phase I: Turning Basin (Morelli Park) (MR4-D, MR4-R), Lincoln Street (MR3-D, MR3-R)	Existing receiving water site per pesticide Plan	to be determined	Two urban runoff/discharge locations (TBD): upstream near Commerce Street; downstream near SJR confluence. Also, two receiving water locations (TDB): downstream of downstream runoff/discharge; and upstream of upstream runoff/discharge locations.
Mormon Slough	Commerce Street to Stockton Deep Water Channel	Phase I: Commerce St (MR2-D, MR2-R), Wilson Way (MR1-D, MR1-R)		to be determined	Two urban runoff/discharge locations (TBD): upstream near Commerce Street; downstream near SJR confluence. Also, two receiving water locations (TDB): downstream of downstream runoff/discharge; and upstream of upstream runoff/discharge locations.

Attachment III - Sampling locations

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Mosher Slough	Upstream and Downstream of I-5	Phase II: Thorton Rd (MS4-D, MS4-R), El Dorado St (MS3-D, MS3-R), West Ln (MS2-D, MS2-R), Morada Ln (MS1-D, MS1-R)	Kelley Drive at Mosher Slough (MS 14) and Thornton Road at Mosher Slough (MS 18) and 1 urban runoff discharge site	to be determined	Two urban runoff/discharge locations (TBD): upstream near city limit; downstream near SJR confluence. Also, two receiving water locations (TDB): downstream of downstream runoff/discharge; and upstream of upstream runoff/discharge locations.
San Joaquin River	San Joaquin River near McLeod Lake			to be determined	Two urban runoff/discharge locations (TBD): upstream near Lake McLeod and downstream prior to SJR confluence. Also, two corresponding receiving water locations (TDB): each downstream of the runoff/discharge locations sampled.
Smith Canal		Phase I: Occidental Ave (SC4-D, SC4-R), Ryde Ave (SC3-D, SC3-R), Pershing Ave Bridge (SC2-D, SC2-R), Yosemite Street/Legion Park (SC1-D, SC1-R)	Existing receiving water site per pesticide Plan	to be determined	Two urban runoff/discharge locations (TBD): upstream near Yosemite Lake; downstream near SJR confluence. Also, two corresponding receiving water locations (TDB): each downstream of the runoff/discharge locations sampled.
Walker Slough		Phase III: Van Buskirk Park (WS3-D, WS3-R), Manthey Rd (WS2-D, WS2-R), Western Pacific Industrial Park (WS1-D, WS1-R)		to be determined	

